

Application No.: 10/533,398
Amdt dated: December 22, 2006
Reply to Office action of September 22, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Withdrawn) A medical device to constrict or occlude a body tissue or vessel, comprising:

a first tissue-engaging member 205 having opposed walls 230, 232 and a first connecting wall 234 defining a first elongate channel 236;

a second tissue-engaging member 210 opposed to the first tissue-engaging member 205 having opposed walls 240, 242 and a second connecting wall 244 defining a second elongate channel 246; and

a securing member 220 for securing the first and the second tissue-engaging members 205, 210 such that front faces of the first and the second connecting walls 234, 244 are opposed to each other.

2. (Withdrawn) The medical device of claim 1, wherein each of the front faces of the first and the second connecting walls 234, 244 includes a plurality of tissue-penetrating elements 238, 248.

3. (Withdrawn) The medical device of claim 1, wherein the securing member 220 is sized and configured to slide into the first and the second elongate channels 236, 246 to securely clamp the first and the second tissue-engaging members 205, 210 around the body tissue or vessel with minimal compressive force.

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4. (Withdrawn) The medical device of claim 3, wherein the force required to secure and maintain adequate traction is independent from the force required to constrict or occlude the body tissue or vessel.

5. (Withdrawn) The medical device of claim 4, wherein only a compressive force needed to perform a specific surgical procedure such as occlusion, ligation or fixation is applied to the body tissue.

6. (Withdrawn) The medical device of claim 5, wherein tissue necrosis due to over-compression is eliminated.

7. (Withdrawn) The medical device of claim 1, wherein at least one of the first and the second tissue engaging-members 205, 210 includes a plurality of bumps, ridges, slots, and holes.

8. (Withdrawn) The medical device of claim 1, wherein the securing member 220 is a spring clip or a deformable clip acting as a retention member and providing uniform pressure across the occluded tissue or vessel.

9. (Withdrawn) The medical device of claim 2, wherein the first and the second connecting walls 234, 244 and the tissue-penetrating elements 238, 248 are formed as an integral, one-piece construction.

10. (Withdrawn) The medical device of claim 2, wherein the tissue-penetrating elements 238, 248 are formed in a plurality of rows.

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11. (Withdrawn) The medical device of claim 10, wherein the number of tissue-penetrating elements 238, 248 per row and the number of rows vary according to each application.

12. (Withdrawn) The medical device of claim 10, wherein the tissue-penetrating elements 238, 248 are aligned or staggered.

13. (Withdrawn) The medical device of claim 2, wherein the tissue-penetrating elements 238, 248 and the securing member 220 have cross-sections of any configuration including polygonal, circular and elliptical configurations.

14. (Withdrawn) A medical device 500 to constrict or occlude a body tissue or vessel, comprising:

a first tissue-engaging portion 505 having a first face including a plurality of tissue penetrating elements or protrusions 525;

a second tissue-engaging portion 510 opposing the first tissue-engaging portion 505 having a second face including a plurality of tissue penetrating elements or protrusions 530; and

a deformable portion 520 connecting the first and the second tissue-engaging portions 505, 510.

15. (Withdrawn) The medical device of claim 14, wherein only a force required to perform a specific surgical procedure such as occlusion, ligation or fixation is applied to the body tissue or vessel.

16. (Withdrawn) The medical device of claim 15, wherein tissue necrosis due to over-compression is eliminated.

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17. (Withdrawn) The medical device of claim 14, wherein the medical device is formed from a flat metal sheet that is die-cut, stamped or etched forming a first notched or toothed portion of the first tissue-engaging portion 505, a smooth connecting portion of the deformable portion 520 and a second notched or toothed portion of the second tissue-engaging portion 510.

18. (Withdrawn) The medical device of claim 17, wherein a plurality of notches or teeth of the first and the second portions are bent so as to extend in the same direction or plane and to form channels within the notches or teeth.

19. (Withdrawn) The medical device of claim 17, wherein the device is formed in a U-shape by bending the deformable portion 520 so that the notches or teeth of the first and the second tissue-engaging portions 505, 510 are opposed.

20. (Withdrawn) The medical device of claim 14, wherein the device is formed from any medically acceptable metal or plastic material that is ductile, malleable or deformable.

21. (Withdrawn) The medical device of claim 20, wherein the metal includes titanium and stainless steel.

22. (Currently amended) An applier for applying a medical device to constrict or occlude a body tissue or vessel, the device having a first tissue-engaging member having opposed walls and a first connecting wall defining a first elongate channel, a second tissue-engaging member opposed to the first tissue-engaging member having opposed walls and a second connecting wall defining a second elongate channel, and a securing member for securing the first and the second tissue-engaging members such

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that front faces of the first and the second connecting walls are opposed to each other, the applier comprising:

- an elongate shaft having a proximal end and a distal end;
- a pair of opposed jaws connected at the distal end of the elongate shaft;
- a handle operably connected at the proximal end of the elongate shaft to open and close the opposed jaws; and
- a sliding member operably connected within the elongate shaft to advance the securing member of a staple-clip over the first and the second tissue-engaging members of the staple-clip after closure of the jaws.

23. (Previously presented) The applier of claim 22, wherein the jaws operate to apply the first and the second tissue-engaging members around a target body tissue or vessel.

24. (Previously presented) The applier of claim 23, wherein the first and the second tissue-engaging members are applied to the jaws either manually or automatically.

25. (Previously presented) The applier of claim 23, wherein the jaws are compressed using only a force required for a specific surgical procedure such as occlusion, ligation or fixation.

26. (Currently amended) The applier of claim 25, wherein the first and the second tissue-engaging members and the securing member are introduced to a surgical site in an un-assembled condition through a small port or trocar, with the first and second tissue-engaging members and securing member being three separate components in the un-assembled condition.

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27. (Previously presented) The applier of claim 26, wherein the sliding member operates to urge the securing member forward and over the first and second tissue-engaging members to secure the medical device.

28. (Original) The applier of claim 27, wherein the applier and the medical device are sized and configured for use in a minimally invasive or laparoscopic surgical procedure.

Claims 29-38 (Canceled).

39. (Withdrawn) A clamp 950 to constrict or occlude a body tissue or vessel, comprising:

a tubular section 955 having an opening 960 extending from a proximal end 965 to a distal end 970; and

a lead-in wire 975 operably attached to the proximal end 965 and is movable between an open position and a closed position,

wherein in the closed position, the lead-in wire 975 is slidably received and secured in the opening 960 of the tubular section 955.

40. (Withdrawn) The clip of claim 39, wherein the lead-in wire 975 is bent against a wall of the tubular section 955 to further secure the body tissue or vessel.

41. (Withdrawn) The clip of claim 39, wherein the clamp is used in donor nephrectomy.

42. (Withdrawn) A medical device 1010 to constrict or occlude a body tissue or vessel, comprising:

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a clip 1011 formed from a first wire including opposed arms 1013, 1014 and openings 1015, 1916; and

a staple 1012 for securing the clip 1011, the staple 1012 formed from a second wire having legs 1017, 1018 to puncture the body tissue or vessel and to interlock the clip 1011 through the openings 1015, 1016.

43. (Withdrawn) The medical device of claim 42, wherein the arms 1013, 1014 further comprise a latch mechanism at their distal ends to mate with each other when the arms 1013, 1014 are closed or clamped together.

44. (Previously presented) The applier of claim 22 wherein the elongate shaft is sized to fit through a surgical trocar port.

45. (Previously presented) The applier of claim 22 wherein one of the jaws has a first slot arranged to operably receive the first tissue engaging member without the securing member and another of the jaws has a second slot arranged to operably receive the second tissue engaging member without the securing member.

46. (Previously presented) The applier of claim 45 wherein the first slot is arranged to operably receive a first portion of the securing member and the second slot is arranged to operably receive a second portion of the securing member, the first and second portions of the securing member being different.

47. (Previously presented) The applier of claim 22 wherein one of the jaws has a first slot sized and arranged to simultaneously hold the first tissue engaging member and a first portion of the securing member and another of the jaws has a second slot arranged to simultaneously hold the second tissue engaging member and a second portion of the securing member.

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48. (New) An applier for applying a medical device to constrict or occlude a body tissue or vessel, the applier comprising:

an elongate shaft having a proximal end and a distal end;

a pair of opposed jaws connected at the distal end of the elongate shaft and arranged to open and close; and

a sliding member operably connected within the elongate shaft to advance a securing member of a staple-clip over a first tissue-engaging member of the staple-clip and a second tissue-engaging member of the staple-clip after closure of the jaws, the sliding member separable from the securing member of the staple-clip and the first and second tissue-engaging members of the staple-clip with the securing member separable from the first and second tissue-engaging members;

wherein a first jaw of the pair of opposed jaws is arranged to hold the first tissue-engaging member of the staple-clip, the first jaw being separable from the first tissue-engaging member of the staple-clip; and

a second jaw of the pair of opposed jaws is arranged to hold the second tissue-engaging member of the staple-clip, the second jaw being separable from the second tissue engaging member of the staple-clip.

49. (New) The applier of claim 48 wherein the first jaw of the pair of opposed jaws holds the first tissue engaging member of the staple-clip without the securing member of the staple-clip and a first jaw of the pair of opposed jaws holds the second tissue engaging member of the staple-clip without the securing member of the staple-clip.